ABSTRACT

Method and device for filtering responses
in a secondary radar extractor

The present invention lies in the field of the filtering of the responses received by an extractor situated downstream of a receiver of a secondary radar. An aim of the invention is to propose a defruiter making it possible to take account of the carriers having a significant radial speed with respect to the secondary radar.

According to the invention, a first response received in a recurrence i is considered synchronous with a second response received in another recurrence j if:

$$\rho_j \in \left[\rho_i - V_{max} \times (t_j - t_i); \rho_i - V_{min} \times (t_j - t_i) \right] \text{ when } t_j > t_i \text{, or}$$

$$\rho_j \in \left[\rho_i - V_{min} \times (t_j - t_i); \rho_i - V_{max} \times (t_j - t_i) \right] \text{ when } t_j < t_i,$$

where:

- V_{min} and V_{max} are respectively the minimum and maximum radial speed of the transponders with respect to the secondary radar, positive by convention for a transponder approaching the radar, the speeds V_{min} and V_{max} possibly being equal, at least V_{min} or V_{max} being nonzero;
- ρ_i and ρ_j are respectively the distance at which the transponder has been detected in recurrence i and in recurrence j;
- t_i and t_j are respectively the instant of emission of the interrogation in recurrence i and in recurrence j.

The defruiter according to the invention can comprise a single synchronous filter (for which $V_{min} = -V_{max}$ for example) or a set of filters operating in parallel, each filter processing different radial speed bins.

Figure 1